


REMARKS

Claims 1-15 are now present in this application. Claims 2-15 have been added to recite additional embodiments of the present invention as supported by the present application. Also, clarifying amendments have been made to the present specification to correct minor grammatical errors that were discovered upon a review after filing of the present application. Accordingly, Allowance of claims 1-15 is earnestly solicited in view of these amendments.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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MARKED-UP VERSION OF THE SPECIFICATION AMENDMENTS

In the Specification

Please amend the paragraph at page 10, lines 15-27 as follows:

When one of the failure detectors at the receiving end at a layers detects a communication failure, an Upstream Signaling Message (USM) signal is generated and sent to a peer using an upstream channel. As illustrated in Fig. 3 for example, if a channel 310 carrying data from node 300 to node 302 fails, node 302 sends a USM signal using a return channel back to node 300. To transmit the USM signals, each layer uses its own communication channel as the return channel. The form of the signaling message varies depending on the layer. For example, at the link layer, a message takes the form of a series of bytes in the FEC channel. As described in more detail below, messages at the wavelength layer take the form of a pattern of modulation of an optical carrier.

Please amend the paragraph at page 11, lines 3-22 as follows:

In addition to the upstream signaling, a downstream signaling message (DSM) signal is sent to the adjacent higher layer over an intralayer—interlayer communication channel for initiating protection. More specifically, a W-DSM signal is used by the fiber layer to alert the wavelength layer of a communication failure; an L-DSM signal is used by the wavelength layer to alert the link layer of a failure, and a C-DSM signal is used by the link layer to alert the circuit layer of a failure. In contrast to the USM signal, the DSM signal travels in a downstream direction of the failure. For instance, if a communication failure occurs between node 300 and node 302, a DSM signal is generated at node 302 and travels downstream

away from node 300 on channel 314. As generally shown in Fig. 3, if the channel 310 between nodes 300 and 302 fails, both of the failure detectors at nodes 300 and 302 detect the failure and each node sends a USM signal upstream for signaling the failure along a return channel of channel 310. If further protection is to be performed at higher layers, DSM signals are sent in the downstream direction along channels 312 and 314.

Please amend the paragraph at page 15, lines 1-8 as follows:

When a protection switching element at the circuit layer detects a communication failure (either by itself or responsive to a C-DSM signal), a C-USM signal is sent to its peer. The C-USM signal is sent over the K1/K2 bytes in the SONET line overhead. If the failure involves only a transponder or a single fiber, the other circuit termination device receives the C-USM signal, which will determine the protection switching to be performed for that circuit.

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